

### **REMARKS**

In the Office Action, the Examiner rejected claims 1-55. However, in view of the amendments set forth above and the reasons set forth below, Applicants respectfully submit that all of pending claims 1-55 are allowable in their present form. By the present Response, Applicants amend claims 1-35 and 38 to address clerical issues. Upon entry of the amendments, claims 1-55 will remain pending in the present patent application. Applicants respectfully request reconsideration of the above-referenced application in view of the following remarks.

#### **Objections to the Claims**

In the Office Action, the Examiner apparently objected to claims 3-7, 9, 11, 12, 17, 21, 27-31, 34, 35, and 38 under 37 C.F.R. § 1,75(a) for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Regarding the Examiner's objection to claims 9, 17 and 38, Applicants have amended these claims based on the Examiner's suggestion to correct clerical errors. Applicants thank the Examiner for pointing out these clerical errors. Regarding the Examiner's objection to claims 3-7, 11, 12, 21, 27-31, 34 and 35, Applicants do not agree with the Examiner's objection. However, the Applicants have amended these claims to remove "the act of" language to expedite prosecution of the present application. Applicants assert that the Examiner's objections are now moot. Accordingly, Applicants respectfully request withdrawal of the Examiner's objections to the claims.

#### **Rejections Under 35 U.S.C. § 102**

In the Office Action, the Examiner rejected claims 1-55 under 35 U.S.C. § 102 as anticipated by Zhao et al. (U.S. Patent No. 6,683,934). Applicants respectfully traverse this rejection.

#### ***Legal Precedent***

On a preliminary note, Applicants stress that the Examiner's rejections are vague regarding the various claim features and, thus, the Applicants remind the Examiner that:

When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.

37 C.F.R. § 1.104(c)2; *see also* M.P.E.P. § 707.07.

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). Moreover, the prior art reference also must show the identical invention “in as complete detail as contained in the ... claim” to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, Applicants need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter.

***Features of Claims 1, 15, 26 and 36 and Claims Depending Therefrom Missing from the Cited Reference***

The Zhao et al. reference fails to disclose each element of independent claims 1, 15, 26, and 36. For instance, independent claims 1, 15, and 26 recite, *inter alia*, “automatically providing a soft tissue decomposition parameter and a bone decomposition parameter by *modifying the default decomposition parameter based on the patient size and the filtration setting*” (emphasis added). Further, independent claim 36 recites, *inter alia*, “automatically providing a soft tissue decomposition parameter and a bone decomposition parameter by *modifying the default decomposition parameter based on a*

*patient size and a filtration setting*” (emphasis added). Because the Zhao et al. reference fails to disclose the recited features, the cited reference fails to anticipate independent claims 1, 15, 26, and 36 and the claims depending therefrom.

In the Office Action, the Examiner appears to suggest that equations 8 and 9 of the Zhao et al. reference disclose modifying a default decomposition parameter based on a patient size and a filtration setting. See Office Action, page 8. These equations are reproduced from the Zhao et al. reference below:

Equation 8:  $(\text{Soft-tissue})_i = [b_i(\text{Lucite})_i \cdot \cos(\Phi_s) + a_i(\text{Aluminum})_i \cdot \sin(\Phi_s)]$

Equation 9:  $(\text{bone/calcification})_i = [b_i(\text{Lucite})_i \cdot \cos(\Phi_b) + a_i(\text{Aluminum})_i \cdot \sin(\Phi_b)]$

where:

i is the ith pixel,

a<sub>i</sub> and b<sub>i</sub> are equivalent to thicknesses of Lucite and Aluminum respectively;

(Lucite)<sub>i</sub> and (Aluminum)<sub>i</sub> are equivalent Lucite and Aluminum thicknesses at the ith pixel from the decomposed image; and

and  $\Phi_s$  and  $\Phi_b$  are predefined rotation angles to obtain respectively, a soft-tissue image and a bone, or calcification image.

See Zhao et al., col. 6, lines 34-35 and col. 9, lines 8-19.

First, equations 8 and 9, as set forth above, clearly do not *modify* a default decomposition parameter. Indeed, it appears that what the Examiner alleges to be parameters (e.g.,  $\Phi_s$  and  $\Phi_b$ ) are *predefined fixed values* according to the Zhao et al. reference. See Zhao et al., col. 9, lines 8-19. Second, none of the variables in the cited equations relate to a filtration setting. While the Examiner points to predetermined calibration tables consisting of different x-ray filtration and exposure levels, these are not utilized in the manner the Examiner suggests. Accordingly, the cited equations certainly do not modify a default decomposition parameter *based on a patient size and a filtration setting*, as presently recited in claims 1, 15, 26, and 36.

Further, Applicants respectfully assert that the Zhao et al. reference clearly fails to teach certain features present in claims depending from 1, 15, 26, and 36. For example,

claims 5, 19, and 30 recite, *inter alia*, “selecting a filtration offset factor based on the filtration setting.” The Examiner apparently points to physical steps 200-n, as illustrated in Fig. 2 of the Zhao et al. reference, as teaching these recited features. However, the Zhao et al. reference indicates that these step sizes “should be determined by the thickness of a potential subject and a necessary resolution.” Zhao et al., col. 8, lines 9-10. Accordingly, Applicants assert that the Zhao et al. reference fails to teach “selecting a filtration offset factor *based on a filtration setting*.” (emphasis added).

In another example, claims 9, 22, and 32 recite, *inter alia*, “*modifying at least one parameter of the soft tissue and bone decomposition parameters to improve image clarity of at least one image of the soft tissue and bone images interactively; and automatically modifying at least one system default based on modifications to the at least one parameter.*” Applicants respectfully assert that the Zhao et al. reference fails to teach *modifying* a parameter, much less modifying a default based on the modification to the parameter. Further, the Zhao et al. reference certainly does not disclose *interactive* modification. In the Office Action, the Examiner asserts that “parameter  $\Phi$  in col. 6, line 48 is modified with math operations in equations (5) or (8) or (9).” Office Action, page 10. Applicants respectfully assert that this is a mischaracterization of the cited reference. The  $\Phi$  variables are not themselves *modified*, rather the  $\Phi$  variables retain their same value as “predefined rotation angles” when utilized in, for example, equations 8 and 9. See Zhao et al., col. 9, lines 3-19.

#### ***Features of Claim 45 and Claims Depending Therefrom Missing from the Cited Reference***

The Zhao et al. reference fails to disclose each element of independent claim 45. For instance, independent claim 45 recites, *inter alia*, “an automatic decomposition parameter selection module adapted to compute soft tissue and bone decomposition parameters by *modifying a default composition parameter based on a patient size category and a filtration setting of the collimator*” (emphasis added).

In the Office Action, the Examiner appears to suggest that equations 8 and 9 of the Zhao et al. reference disclose modifying a default decomposition parameter based on a patient size and a filtration setting. *See* Office Action, page 12. Again, Applicants respectfully assert that equations 8 and 9, as set forth above, clearly do not *modify* a default decomposition parameter. Further, none of the variables in the cited equations relate to a filtration setting. Accordingly, the cited equations certainly do not modify a default decomposition parameter *based on a patient size category and a filtration setting of the collimator*, as presently recited in claim 45.

Further, Applicants respectfully assert that the Zhao et al. reference clearly fails to teach certain features present in the claims depending from claim 45. For example, claim 46 recites, *inter alia*, “an image enhancement module adapted to *modify* at least one parameter to improve image clarity of at least one image of the soft tissue and bone images *interactively*; and a system update module adapted to *modify* at least one system default based on modifications to the at least one parameter.” Applicants respectfully assert that the Zhao et al. reference fails to teach *modifying* a parameter of the soft tissue and bone decomposition parameters, much less modifying a system default based on the modification to the parameter. Further, the Zhao et al. reference certainly does not disclose *interactive* modification. In the Office Action, the Examiner asserts that “parameter  $\Phi$  in col. 6, line 48 is modified with math operations in equations (5) or (8) or (9).” Office Action, page 10. Applicants respectfully assert that this is a mischaracterization of the cited reference. The  $\Phi$  variables are not themselves *modified*, rather the  $\Phi$  variables retain their same value as “predefined rotation angles” when utilized in, for example, equations 8 and 9. *See* Zhao et al., col. 9, lines 3-19.

***Features of Claim 48 and Claims Depending Therefrom Missing from the Cited Reference***

The Zhao et al. reference fails to disclose each element of independent claim 48. For instance, independent claim 48 recites, *inter alia*, “automatically providing a soft tissue decomposition parameter and a bone decomposition parameter based on a default decomposition parameter, a patient size, and a collimator filtration setting” (emphasis added).

In the Office Action, the Examiner appears to suggest that equations 8 and 9 of the Zhao et al. reference disclose these recited features. Applicants respectfully assert that none of the variables in the cited equations relate to a filtration setting. Accordingly, the cited equations certainly do not automatically provide a soft tissue decomposition parameter and a bone decomposition parameter *based on a default decomposition parameter, a patient size, and a collimator filtration setting*.

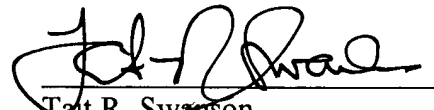
For these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 102 and allowance of claims 1-55.

**Conclusion**

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: June 21, 2005

A handwritten signature in black ink, appearing to read 'Tait R. Swanson', written over a horizontal line.

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